

WE CLAIM:

1. A protein derived from an enterically transmitted non-A/non-B viral hepatitis agent whose genome contains a region which is homologous to a coding region of the 1.33 kb DNA EcoRI insert present in plasmid pTZKF1(ET1.1) carried in E. coli strain BB4 and having ATCC deposit no. 67717.

2. The protein of claim 1, which is encoded by a complete coding region within said 1.33 kb EcoRI insert.

3. A recombinant protein derived from an enterically transmitted nonA/nonB viral hepatitis agent whose genome contains a region which is homologous to a coding region of a DNA molecule having a first sequence (SEQ ID NO.1):

	AGACCTGTCC CTGTTGCAGC TGTCTACCA CCCTGCCCCG AGCTCGAACA GGCCTTCTC	60
20	TACCTGCCCC AGGAGCTCAC CACCTGTGAT AGTGTCTGTA CATTGAATT AACAGACATT	120
	GTGCACTGCC GCATGGCCGC CCCGAGCCAG CGCAAGGCCG TGCTGTCCAC ACTCGTGGGC	180
25	CGCTACGGCG GTCGCACAAA GCTCTACAAT GCTTCCCACT CTGATGTTTG CGACTCTCTC	240
	GCCCCGTTTTA TCCCGGCCAT TGGCCCCGTA CAGGTTACAA CTTGTGAATT GTACGAGCTA	300
	GTGGAGGCCA TGGTCGAGAA GGGCCAGGAT GGCTCCGCCG TCCTTGAGCT TGATCTTTGC	360
30	AACCGTGACG TGCCAGGAT CACCTTCTTC CAGAAAGATT GTAACAAGTT CACCACAGGT	420
	GAGACCATTG CCCATGGTAA AGTGGGCCAG GGCATCTCGG CCTGGAGCAA GACCTTCTGC	480
35	GCCCTCTTTG GCCCTTGGTT CCGCGCTATT GAGAAGGCTA TTCTGGCCCT GCTCCCTCAG	540
	GGTGTGTTTT ACGGTGATGC CTTTGATGAC ACCGTCTTCT CGGCGGCTGT GGCCGCAGCA	600
	AAGGCATCCA TGGTGTGTTGA GAATGACTTT TCTGAGTTTG ACTCCACCCA GAATAACTTT	660
40	TCTCTGGGTC TAGAGTGTGC TATTATGGAG GAGTGTGGGA TGCCGCAGTG GTCATCCGC	720
	CTGTATCACC TTATAAGGTC TGCCTGGATC TTGCAGGCCG CGAAGGAGTC TCTGCGAGGG	780
45	TTTTGGAAGA AACACTCCCG TGAGCCCGGC ACTCTTCTAT GGAATACTGT CTGGAATATG	840
	GCCGTATTAT CCACTGTTA TGACTTCGCG GATTTTCAGG TGGCTGCCTT TAAAGGTGAT	900

	GATTCGATAG TGCTTTGCAG TGAGTATCGT CAGAGTCCAG GAGCTGCTGT CCTGATCGCC	960
	GGCTGTGGCT TGAAGTTGAA GGTAGATTTG CGCCCGATCG GTTTGTATGC AGGTGTTGTG	1020
5	GTGGCCCCCG GCCTTGGCGG GCTCCCTGAT GTTGTGCGCT TCGCCGGCCG GCTTACCGAG	1080
	AAGAATTGGG GCCTTGGCCC TGAGCGGGCG GAGCAGCTCC GCCTCGCTGT TAGTGATTTG	1140
10	CTCCGCAAGC TCACGAATGT AGCTCAGATG TGTGTGGATG TTGTTTCCCG TGTATATGGG	1200
	GTTCCTCCCTG GACTCGTTCA TAACCTGATT GGCATGCTAC AGGCTGTTGC TGATGGCAAG	1260
	GCACATTTCA CTGAGTCAGT AAAACCAGTG CTCGA	1295

15

a second sequence (SEQ ID NO.5):

	TCGAGCACTG GTTTTACTGA CTCAGTGAAA TGTGCCTTGC CATCAGCAAC AGCCTGTAGC	60
	ATGCCAATCA GGTATGAAC GAGTCCAGGG GAAACCCCAT AAACACGGGA AACACATCC	120
20	ACACACATCT GAGCTACATT CGTGAGCTTG CGGAGGAAAT CACTAACAGC GAGGCGGAGC	180
	TGCTCCGCCC GCTCAGGGCC AGGGCCCCAA TTCTTCTCGG TAAGCCGGCC GGCGAAGCGC	240
25	ACAACATCAG GGAGCGCGCC AAGGCCGGGG GCCACCACAA CACCTGCATA CAAACCGATC	300
	GGGCGGAAAT CTACCTTCAA CTTCAAGCCA CAGCCGGCGA TCAGGACAGC AGCTCCTGGA	360
	CTCTGACGAT ACTCACTGCA AAGCACTATC GAATCATCAC CTTTAAAGGC AGCCACCTGA	420
30	AAATCGCGGA AGTCATAACA GTGGGTAATA ACGGCCATAT TCCAGACAGT ATTCCATAGA	480
	AGAGTGCCGG GCTCACCGBA GTGTTTCTTC CAAAACCCTC GCAGAGACTC CTTGCGGGCC	540
35	TGCAAGATCC ACGCAGACCT TATAAGGTGA TACAGGCGGA TGAGCCACTG CGGCATCCCA	600
	CACTCCTCCA TAATAGCACA CTCTAGACCC AGAGAAAAGT TATTCTGGGT GGAGTCAAAC	660
	TCAGAAAAGT CATTCTCAA CACCATGGAT GCCTTTGCTG CGGCCACAGC CGCCGAGAAG	720
40	ACGGTGTCAT CAAAGGCATC ACCGTAAAAC ACACCCTGAG GGAGCAGGGC CAGAATAGCC	780
	TTCTCAATAG CGCGGAACCA AGGGCCAAAG AGGGCGCAGA AGGTCTTGCT CCAGGCCGAG	840
45	ATGCCCTGGC CCACTTTACC ATGGGCAATG GTCTCACCTG TGGTGAACCT GTTACAATCT	900
	TTCTGGAAGA AGGTGATCCT GGACACGTCA CGGTTGCAA GATCAAGCTC AAGGACGGCG	960
	GAGCCATCCT GGCCCTTCTC GACCATGGCC TCCACTAGCT CGTACAATTC ACAAGTTGTA	1020
50	ACCTGTACGG GGCCAATGGC CGGGATAAAA CGGGCGAGAG AGTCGCGAAC ATCAGAGTGG	1080
	GAAGCATTGT AGAGCTTTGT GCGACCGCCG TAGCGGCCCA CGAGTGTTGA CAGCACGGCC	1140
55	TTGCGCTGGC TCGGGGCGGC CATGCGGCAG TGCACAATGT CTGTTAATTC AAATGTTACG	1200

	ACACTATCAC AGGTGGTGAG CTCTGGGGC AGGTAGAGAA GGCCCTGTC GAGCTCGGGG	1260
	CAGGGTGGTA GAACAGCTGC AACAGGAGCA GGTCT	1295
5	a third sequence (SEQ ID NO.6):	
	AGGCAGACCA CATATGTGGT CGATGCG ATGGAGGCGC ATCAGTTTAT TAAGGCTCCT	57
	GGCATCACTA CTGCTATTGA GCAGGCTGCT CTAGCAGCGG CCAACTCTGC CCTGGCGAAT	117
10	GCTGTGGTAG TTAGGCGCTT TGTCTCTCAG CAGCAGATTG AGATCCTCAT TAACCTAATG	177
	CAACCTCGCC AGCTTGTTTT GCGCCCGGAG GTTTTCTGGA ATCATCCCAT CCAGCGTGTC	237
15	ATCCATAACG AGCTGGAGCT TTAAGTCCGC GCGCGCTCCG GCGGCTGTCT TGAAATTGGC	297
	GCCCATCCCC GCTCAATAAA TGATAATCCT AATGTGGTCC ACCGCTGCTT CCTCCGCCCT	357
	GTTGGGCGTG ATGTTGAGCG CTGGTATACT GCTCCCACTC GCGGGCCGGC TGCTAATTGC	417
20	CGGCGTTCCG CGCTGGGCGG GCTTCCCGCT GCTGACCGCA CTTACTGCCT CGACGGGTTT	477
	TCTGGCTGTA ACTTTCCGCG CGAGACTGGC ATCGCCCTCT ACTCCCTTCA TGATATGTCA	537
	CCATCTGATG TCGCCGAGGC CATGTTCCGC CATGGTATGA CGCGGCTCTA TGCCGCCCTC	597
25	CATCTTCCGC CTGAGGTCTT GCTGCCCTCT GGCACATATC GCACCGCATC GTATTTGCTA	657
	ATTCATGACG GTAGGCGCGT TGTGGTGACG TATGAGGGTG ATACTAGTGC TGGTTACAAC	717
30	CACGATGTCT CCAACTTGCG CTCCTGGATT AGAACCACCA AGGTTACCGG AGACCATCCC	777
	CTCGTTATCG AGCGGGTTAG GGCCATTGGC TGCCACTTTG TTCTCTTGCT CACGGCAGCC	837
	CCGGAGCCAT CACCTATGCC TTATGTTCTT TACCCCGGGT CTACCGAGGT CTATGTCCGA	897
35	TCGATCTTCG GCGCGGGTGG CACCCCTTCC TTATTCCCAA CCTCATGCTC CACTAAGTCG	957
	ACCTTCCATG CTGTCCCTGC CCATATTTGG GACCGTCTTA TGCTGTTCCG GGCCACCTTG	1017
40	GATGACCAAG CCTTTTGCTG CTCCCGTTTA ATGACCTACC TTCGCGGCAT TAGCTACAAG	1077
	GTCAGTGTG GTACCCCTGT GGCTAATGAA GGCTGGAATG CCTCTGAGGA CGCCCTCACA	1137
	GCTGTTATCA CTGCCGCTA CCTTACCATT TGCCACCAGC GGTATCTCCG CACCCAGGCT	1197
45	ATATCCAAGG GGATGCGTGG TGTGGAACGG GAGCATGCCC AGAAGTTTAT AACACGCTC	1257
	TACAGCTGGC TCTTCGAGAA GTCCGGCGGT GATTACATCC CTGGCCGTCA GTTGGAGTTC	1317
50	TACGCCAGT GCAGGCGCTG GCTCTCCGCC GGCTTTCATC TTGATCCAGC GGTGTTGGTT	1377
	TTTGACGAGT CGGCCCCCTG CCATTGTAGG ACCGCGATCC GTAAGGCGCT CTCAAAGTTT	1437
	TGCTGCTTCA TGAAGTGGCT TGGTCAGGAG TGCACCTGCT TCCTTCAGCC TGCAGAAGGC	1497
55	GCCGTCGGCG ACCAGGGTCA TGATAATGAA GCCTATGAGG GGTCCGATGT TGACCCTGCT	1557

	GAGTCCGCCA TTAGTGACAT ATCTGGGTCC TATGTCTGTC CTGGCACTGC CCTCCAACCG	1617
5	CTCTACCAGG CCGTCGATCT CCCCCTGAG ATTGTGGCTC GCGCGGGCCG GCTGACCGCC	1677
	ACAGTAAAGG TCTCCAGGT CGATGGGCG ATCGATTGCG AGACCTTCT TGGTAACAAA	1737
	ACCTTTGCGA CGTGTTCGT TGACGGGCG GTCTTAGAGA CCAATGGCCC AGAGCGCCAC	1797
10	AATCTCTCT TCGATGCCAG TCAGAGCACT ATGGCCGCTG GCCCTTTCAG TCTCACCTAT	1857
	GCCGCTCTG CAGCTGGGCT GGAGGTGCG TATGTTGCTG CCGGGCTTGA CCATCGGGCG	1917
15	GTTTTTGCCC CCGGTGTTTC ACCCCGCTCA GCCCCCGCG AGGTTACCGC CTTCTGCTCT	1977
	GCCCTATACA GGTTTAACCG TGAGGCCAG CGCCATTGCG TGATCGGTAA CTTATGGTTC	2037
	CATCCTGAGG GACTCATTGG CCTCTTCGCC CCGTTTTGCG CCGGGCATGT TTGGGAGTCG	2097
20	GCTAATCCAT TCTGTGGCGA GAGCACACTT TACACCCGTA CTTGGTCGGA GGTGATGCC	2157
	GTCTCTAGTC CAGCCCGGCC TGACTTAGGT TTTATGTCTG AGCCTTCTAT ACCTAGTAGG	2217
25	GCCGCCAGCG CTACCCTGGC GGCCCTCTA CCCCCCCTG CACCGGACCC TTCCCCCCT	2277
	CCCTCTGCC CGGCGCTTG TGAGCCGGCT TCTGGCGCTA CCGCCGGGC CCCGGCCATA	2337
	ACTCACCAGA CGGCCCGCA CCGCCGCTG CTCTTCACT ACCCGATGG CTCTAAGGTA	2397
30	TTCCCGGCT CGCTGTTGTA GTCGACATGC ACGTGGCTCG TTAACGCGTC TAATGTTGAC	2457
	CACCGCCCTG GCGGCGGGCT TTGCCATGCA TTTTACCAA GGTACCCCGC CTCCTTTGAT	2517
35	GCTGCCTCTT TTGTGATGCG CGACGGCGCG GCCGCGTACA CACTAACCC CCGGCCAATA	2577
	ATTCAGCTG TCGCCCTGA TTATAGGTTG GAACATAACC CAAAGAGGCT TGAGGCTGCT	2637
	TATCGGAAA CTTGCTCCG CCTCGGCACC GCTGCATACC CGCTCTCGG GACCGGCATA	2697
40	TACCAGGTGC CGATCGGCC CAGTTTTGAC GCCTGGGAGC GGAACCACCG CCCCAGGAT	2757
	GAGTTGTACC TTCCTGAGCT TGCTGCCAGA TGGTTGAGG CCAATAGGCC GACCCGCCG	2817
45	ACTCTACTA TAACTGAGGA TGTGACGG ACAGCGAATC TGCCATCGA GCTTGACTCA	2877
	GCCACAGATG TCGCCGGGC CTGTGCCGC TGTCGGGTCA CCCCCGGCT GTTTCAGTAC	2937
	CAGTTTACTG CAGGTGTGCC TGGATCCGC AAGTCCGCT CTATACCCA AGCCGATGTG	2997
50	GACGTTGTCG TGGTCCGAC GCGTGAGTTG CGTAATGCCT GCGCCGTCG CGGCTTTGCT	3057
	GCTTTTACCC CGCATACTG CGCCAGATC ACCAGGGGC GCCGGGTTGT CATTGATGAG	3117
55	GCTCCATCCC TCCCCCTCA CCGTCTGCTG CTCACATGC AGCGGGCCG CACCGTCCAC	3177
	CTTCTTGGCG ACCCGAACCA GATCCAGCC ATCGACTTTG AGCAGCTGG GCTCGTCCC	3237

	GCCATCAGGC CGGACTTAGG CCCCACCTCC TGGTGGCATG TTACCCATCG CTGGCCTGCG	3297
5	GATGTATGCG AGGTCATCGG TGGTGCATAC CCGATGATCC AGACCACTAG CCGGGTTCTC	3357
	CGTTGTTGT TCTGGGGTGA GCCTGCCGTC GGGCAGAAAC TAGTGTTTAC CCAGGCGGCC	3417
	AAGCCCGCCA ACCCCGGCTC AGTGACGGTC CACGAGGGCG AGGGGCTAC CTACACGGAG	3477
10	ACCACTATTA TTGCCACAGC AGATGCCCGG GGCCTTATTC AGTCGTCTCG GGCTCATGCC	3537
	ATTGTTGCTC TGACGCGCCA CACTGAGAAG TGCGTCATCA TTGACGCAAC AGGCCTGCTT	3597
15	CGCGAGGTGG GCATCTCCGA TGCAATCGTT AATACTTTT TCCTCGCTGG TGGCGAAATT	3657
	GGTCACCAGC GCCCATCAGT TATTCCCGGT GGCAACCGTG ACGCCAATGT TGACACCCTG	3717
	GCTGCCTTCC CGCCGTCTTG CCAGATTAGT GCCTTCCATC AGTTGGCTGA GGAGCTTGGC	3777
20	CACAGACCTG TCCCTGTTGC AGCTGTTCTA CCACCCTGCC CCGAGCTCGA ACAGGGCCTT	3837
	CTCTACCTGC CCCAGGAGCT CACCACCTGT GATAGTGTCG TAACATTTGA ATTAACAGAC	3897
25	ATTGTGCACT GCCGCATGGC CGCCCCGAGC CAGCGCAAGG CCGTGCTGTC CACACTCGTG	3957
	GGCCGCTACG GCGGTGCGAC AAAGCTCTAC AATGCTTCCC ACTCTGATGT TCGCGACTCT	4017
	CTCGCCCGTT TTATCCCGGC CATTGGCCCC GTACAGGTTA CAACTTGTA ATTGTACGAG	4077
30	CTAGTGGAGG CCATGGTCGA GAAGGGCCAG GATGGCTCCG CCGTCCTTGA GCTTGATCTT	4137
	TGCAACCGTG ACGTGTCAG GATCACCTTC TTCCAGAAAG ATTGTAACAA GTTCACCACA	4197
35	GGTGAGACCA TTGCCCATGG TAAAGTGGGC CAGGGCATCT CGGCCTGGAG CAAGACCTTC	4257
	TGCGCCCTCT TTGGCCCTTG GTTCCGCGCT ATTGAGAAGG CTATTCTGGC CCTGCTCCCT	4317
	CAGGGTGTGT TTTACGGTGA TGCTTTTGAT GACACCGTCT TCTCGGCGGC TGTGGCCGCA	4377
40	GCAAAGGCAT CCATGGTGTT TGAGAATGAC TTTTCTGAGT TTGACTCCAC CCAGAATAAC	4437
	TTTTCTCTGG GTCTAGAGTG TGCTATTATG GAGGAGTGTG GGATGCCGCA GTGGCTCATC	4497
45	CGCCTGTATC ACCTTATAAG GTCTGCSTGG ATCTTGCAAG CCCCAGAGGA GTCTCTGCGA	4557
	GGGTTTTGGA AGAAACACTC CGGTGAGCCC GGCACCTCTC TATGGAATAC TGTCTGGAAT	4617
	ATGGCCGTTA TTACCCACTG TTATGACTTC CGCGATTTTC AGGTGGCTGC CTTTAAAGGT	4677
50	GATGATTCGA TAGTGCTTTG CAGTGAGTAT CGTCAGAGTC CAGGAGCTGC TGTCCTGATC	4737
	GCCGGCTGTG GCTTGAAGTT GAAGGTAGAT TTCCGCCCGA TCGGTTTGTA TGCAGGTGTT	4797
55	GTGGTGGCCC CCGGCCTTGG CGCGCTCCCT GATGTTGTGC GCTTCGCCGG CCGGCTTACC	4857
	GAGAAGAATT GGGGCCCTGG CCCTGAGCGG GCGGAGCAGC TCCGCCCTGC TGTTAGTGAT	4917

	TTCTCTCCGA AGCTCAGGAA TGTAGCTCAG ATGTGTGTGG ATGTTGTTTC CCGTGTTTAT	4977
	GGGGTTTCCC CTGGACTCGT TCATAACCTG ATTGGCATGC TACAGGCTGT TGCTGATGGC	5037
5	AAGGCACATT TCACTGAGTC AGTAAACCA GTGCTCGACT TGACAAATTC AATCTTGTGT	5097
	CGGGTGGAAAT GA ATAACATGTC TTTTGTGCG CCCATGGGTT CGCGACCATG	5149
10	CGCCCTCGGC CTATTTTGTG GCTGCTCCTC ATGTTTTTGC CTATGCTGCC CGCGCCACCG	5209
	CCCCGTGAGC CGTCTGGCCG CCGTCTGGG CGGCGCAGCG GCGGTTCCGG CGGTGGTTTC	5269
	TGGGGTGACC GGGTTGATTC TCAGCCCTTC GCAATCCCT ATATTCATCC AACCAACCCC	5329
15	TTCCGCCCCG ATGTCACCGC TGCGGCCGGG GCTGGACCTC GTGTTCCGCA ACCCGCCCGA	5389
	CCACTCGGCT CCGCTTGGCG TGACCAGGCC CAGCGCCCCG CCGTTGCCTC ACGTCGTAGA	5449
20	CCTACCACAG CTGGGGCCGC GCGCTAA CCGCGGTGCG TCCGGCCCAT GACACCCCGC	5507
	CAGTGCTGA TGTCGACTCC CGCGGCGCCA TCTTGCGCG GCAGTATAAC CTATCAACAT	5567
	CTCCCCTTAC CTCTCCGTG GCCACCGGCA CTAACCTGGT TCTTTATGCC GCCCCTCTTA	5627
25	GTCCGCTTTT ACCCCTTCAG GACGGCAGCA ATACCCATAT AATGGCCACG GAAGCTTCTA	5687
	ATTATGCCCA GTACCGGTT GCCCGTGCCA CAATCCGTTA CCGCCCCTG GTCCCAATG	5747
30	CTGTGCGCGG TTACGCCATC TCCATCTCAT TCTGGCCACA GACCACCACC ACCCGACGT	5807
	CCGTTGATAT GAATTCAATA ACCTCGACGG ATGTTGCTAT TTTAGTCCAG CCCGGCATAG	5867
	CCTCTGAGCT TGTGATCCCA AGTGAGCGCC TACACTATCG TAACCAAGGC TGGCGCTCCG	5927
35	TCGAGACCTC TGGGGTGGCT GAGGAGGAGG CTACCTCTGG TCTTGTTATG CTTTGCATAC	5987
	ATGGCTCACT CGTAAATTCC TATACTAATA CACCCTATAC CCGTGCCCTC GGGCTGTTGG	6047
40	ACTTTGCCCT TGAGCTTGAG TTTGCAACC TTACCCCGG TAACACCAAT ACGCGGTCT	6107
	CCCGTTATTC CAGCACTGCT CGCCACCGCC TTCGTGCGG TGCGGACGGG ACTGCCGAGC	6167
	TCACCACCAC GGCTGCTACC CGCTTTATGA AGGACCTCTA TTTTACTAGT ACTAATGGTG	6227
45	TCGGTGAGAT CGGCCGCGG ATAGCCCTCA CCTGTTCOA CCTTGCTGAC ACTCTGCTTG	6287
	GCGGCCTGCC GACAGAATTG ATTTCTGCGG CTGGTGGCCA GCTGTTCTAC TCCCGTCCC	6347
50	TTGTCTCAGC CAATGGCGAG CCGACTGTTA AGTTGTATAC ATCTGTAGAG AATGCTCAGC	6407
	AGGATAAGGG TATTGCAATC CCGCATGACA TTGACCTCGG AGAATCTCGT GTGGTTATTC	6467
	AGGATTATGA TAACCAACAT GAACAAGATC GGCGGACGCC TTCTCCAGCC CCATCGCGCC	6527
55	CTTTCTCTGT CCTTCGAGCT AATGATGTGC TTTGGCTCTC TCTCACCCTC GCCGAGTATG	6587

	ACCAGTCCAC TTATGGGCTCT TCGAGTGGGCG CAGTTTATGT TTCTGACTCT GTGACCTTGG	6647
	TTAATGTTGC GACCGGGGCG CAGGCGGTTG CCGGGTGGCT CGATTGGACC AAGGTCACAC	6707
5	TTGACGGTGG CCGGCTCTGC ACCATCGAGC AGTACTCGAA GACCTTCTTT GTGCTGCCGC	6767
	TCCGGGGTAA GGTCTCTTTG TGGGAGGAG GCACAACTAA AGCGGGGTAC CTTTATAATT	6827
10	ATAACACCAC TGCTAGCGAC CAACTGCTTG TCGAGAATGC CGCGGGGCAC CGGGTCGCTA	6887
	TTTCCACTTA CACCACTAGC CTGGGTGCTG GTCCCGTCTC CATTCTCGG GTTGCGGTTT	6947
	TAGCCCCCA CTCTGGGCTA GCATTGCTTG AGGATACCTT GGACTACCCT GCCCGCGCCC	7007
15	ATACTTTTGA TGATTTCTGC CCGAGTGGC GCGGCTTGG CCTTCAGGGC TCGCTTTCC	7067
	AGTCTACTGT CGCTGAGCTT CAGCGCTTA AGATGAAGGT GGGTAAACT CGGGAGTTGT	7127
20	AG TTTATTTGCT TGTGCCCCC TTCTTTCTGT TGCTTATTC TCATTTCTGC	7179
	GTTCCGCGCT CCCTGA	7195

a fourth sequence (SEQ ID NO.10):

25	GCCATGGAGG CCCACCAGTT CATTAAGGCT CCGGCATCA CTA CTGCTAT TGAGCAAGCA	60
	GCTCTAGCAG CGGCCAACTC CGCCCTTGGC AATGCTGTGG TGGTCCGGCC TTTCTTTCC	120
	CATCAGCAGG TTGAGATCCT TATAAATCTC ATGCAACCTC GGCAGCTGGT GTTTCGTCCT	180
30	GAGGTTTTTT GGAATCACCC GATTCAACGT GTTATACATA ATGAGCTTGA GCAGTATTGC	240
	CGTGCTCGCT CGGGTCGCTG CTTGAGATT GGAGCCACC CACGCTCCAT TAATGATAAT	300
35	CCTAATGTCC TCCATCGCTG CTTTCTCCAC CCGCTCGGCC GGGATGTTCA GCGCTGGTAC	360
	ACAGCCCCGA CTAGGGGACC TCGGGCGAAC TGTGCGGCT CGGCACTTCG TGGTCTGCCA	420
	CCAGCCGACC GCACTTACTG TTTTGATGGC TTTGCCGGCT GCCGTTTTGC CGCCGAGACT	480
40	GGTGTGGCTC TCTATTCTCT CCATGACTTG CAGCCGGCTG ATGTTGCCGA GGCGATGGCT	540
	CGCCACGGCA TGACCCGCTT TTATGCAGCT TTCCACTTGC CTCCAGAGGT GTCCTGCCT	600
45	CCTGGCACCT ACCGGACATC ATCCTACTTG CTGATCCACG ATGGTAAGCG CGCGGTTGTC	660
	ACTTATGAGG GTGACACTAG CGCCGGTTAC AATCATGATG TTGCCACCT CCGCACATGG	720
	ATCAGGACAA CTAAGGTTGT GGGTGAACAC CTTTGGTGA TCGAGCGGGT GCGGGGTATT	780
50	GGCTGTCACT TTGTGTTGTT GATCACTGGC GCGGCTGAGC CTTCCCGAT GCCCTACGTT	840
	CCTTACCCGC GTTCGACGGA GGTCTATGTC CGGTCTATCT TTGGGCCCGG CGGGTCCCCG	900
55	TGCTGTTC CAGCCGCTTG TGCTGTCAAG TCCACTTTT ACGCCGTCCC CACGCACATC	960

	TGGGACCGTC TCATGCTCTT TGGGGCCACC CTCGACGACC AGGCCTTTTG CTGCTCCAGG	1020
	CTTATGACGT ACCTTCGTGG CATTAGCTAT AAGGTAAGTG TGGGTGCCCT GGTGCTAAT	1080
5	GAAGGCTGGA ATGCCACCGA GGATGCGCTC ACTGCAGTTA TTACGGCGGC TTACCTCACA	1140
	ATATGTCATC AGGCTTATTT GCGGACCCAG GCGATTTCTA AGGGCATGCG CCGGCTTGAG	1200
	CTTGAACATG CTCAGAAATT TATTTCAAGC CTCTACAGCT GGCTATTTGA GAAGTCAGGT	1260
10	CGTGATTACA TCCCAGGCGG CCAGCTGCAG TTCTACGCTC AGTGCCGCGG CTGGTTATCT	1320
	GCCGGGTTCC ATCTCGACCC CCGCACCTTA GTTTTTGATG AGTCAGTGCC TTGTAGCTGC	1380
15	CGAACCACCA TCCGGCGGAT CGCTGGAAAA TTTTGCTGTT TTATGAAGTG GCTCGGTCAG	1440
	GAGTGTCTT GTTTCCTCCA GCCCGCCGAG GGGCTGGCGG GCGACCAAGG TCATGACAAT	1500
	GAGGCCTATG AAGGCTCTGA TGTGATACT GCTGAGCCTG CCACCCTAGA CATTACAGGC	1560
20	TCATACATCG TGGATGGTCG GTCTCTGCAA ACTGTCTATC AAGCTCTCGA CCTGCCAGCT	1620
	GACCTGGTAG CTCGCGCAGC CCGACTGTCT GCTACAGTTA CTGTTACTGA AACCTCTGGC	1680
25	CGTCTGGATT GCCAAACAAT GATCGGCAAT AAGACTTTTC TCACTACCTT TGTGATGGG	1740
	GCACGCCTTG AGGTTAACGG GCCTGAGCAG CTTAACCTCT CTTTTGACAG CCAGCAGTGT	1800
	AGTATGGCAG CCGGCCCGTT TTGCCTCACC TATGCTGCCG TAGATGGCGG GCTGGAAGTT	1860
30	CATTTTTCCA CCGCTGGCCT CGAGAGCCGT GTTGTTCCTC CCCCTGGTAA TGCCCCGACT	1920
	GCCCCGCCGA GTGAGGTAC GCCTTCTGC TCAGCTCTTT ATAGGCACAA CCGGCAGAGC	1980
35	CAGCGCCAGT CGGTTATTGG TAGTTGTGG CTGCACCCTG AAGGTTTGCT CGGCCTGTTC	2040
	CCGCCCTTTT CACCCGGGCA TGAGTGGCGG TCTGCTAACC CATTTTGCGG CGAGAGCACG	2100
	CTCTACACCC GCACTTGGTC CACAATTACA GACACACCCT TAACTGTCGG GCTAATTTCC	2160
40	GGTCATTTGG ATGCTGCTCC CCACTCGGGG GGGCCACCTG CTAAGTCCAC AGGCCCTGCT	2220
	GTAGGCTCGT CTGACTCTCC AGACCCTGAC CCGCTACCTG ATGTTACAGA TGGCTCACGC	2280
45	CCCTCTGGGG CCCGTCCGGC TGGCCCCAAC CCGAATGGCG TTCCGCAGCG CCGTTACTA	2340
	CACACCTACC CTGACGGGCG TAAGATCTAT GTCGGCTCCA TTTTCGAGTC TGAGTGCACC	2400
	TGGCTTGTC ACGCATCTAA CGCCGGCCAC CGCCCTGGTG GCGGGCTTTG TCATGCTTTT	2460
50	TTTCAGCGTT ACCCTGATTC GTTTGACGCC ACCAAGTTTG TGATGCGTGA TGGTCTTGCC	2520
	GCGTATACCC TTACACCCCG GCGATCATT CATGCGGTGG CCCCCGACTA TCGATTGGAA	2580
55	CATAACCCCA AGAGGCTCGA GGCTGCTAC CGCGAGACTT GCGCCCGCGG AGGCACTGCT	2640

	GCCTATCCAC TCTTAGGCGC TGSCATTTAC CAGGTGCTG TTAGTTTGAG TTTTGATGCC	2700
	TGGGAGCGGA ACCACCGCCC GTTTGAGGAG GTTTACCTAA CAGAGGTGGC GGCTCGGTGG	2760
5	TTTGAATCCA ACCGCGCGCG TGAGCGGAGG TTGAACATAA CTGAGGATAC CGCCCGTGCG	2820
	GCCAACTGGG GCGTGGAGCT TGACTCGGGG AGTGAAGTAG GCGCGCATG TGCCGGGTGT	2880
10	AAAGTCGAGC CTGGCGTTGT GCGGTATCAG TTTACAGCCG GTGTCCCGCG CTCTGGCAAG	2940
	TCAAAGTCCG TGCAACAGGC GGATGTGAT GTTGTGTGTG TGCCCACTCG CGAGCTTCGG	3000
	AACGCTTGGC GCGCGCGGGG CTTTGCAGCA TTTACTCGGC AACTGCGGC CCGTGTCACT	3060
15	AGCGGCCGTA GGGTTGTCTT TGATGAGGCG CCTTCGCTCC CCCCACACTT GCTGCTTTTA	3120
	CATATGCAGC GTGCTGCATC TGTGCACCTC GTTGGGGACC CGAATCAGAT CCCCGCCATA	3180
20	GATTTTGAGC ACACCGGTCT GATTCAGCA ATACGGCCGG AGTTGGTCCC GACTTCATGG	3240
	TGGCATGTCA CCCACCGTTG CCTGCGAGT GTCTGTGAGT TAGTCCGTGG TGCTTACCCT	3300
	AAAATCCAGA CTACAAGTAA GGTGCTCCGT TCCCTTTTCT GGGGAGAGCC AGCTGTCCGC	3360
25	CAGAAGCTAG TGTTACACA GGCTGCTAAG GCGCGCACC CCGGATCTAT AACGGTCCAT	3420
	GAGGCCCAGG GTGCCACTTT TACCACTACA ACTATAATTG CAACTGCAGA TGCCCGTGGC	3480
30	CTCATACAGT CCTCCCGGGC TCACGCTATA GTTGCTCTCA CTAGGCATAC TGAAAAATGT	3540
	GTTATACTTG ACTCTCCCGG CCGTGTGCGT GAGGTGGGTA TCTCAGATGC CATTGTTAAT	3600
	AATTTCTTCC TTTGCGGTGG CGAGGTGGT CACCAGAGAC CATCGGTCAT TCCGCGAGGC	3660
35	AACCCTGACC GCAATGTTGA CGTGCTTGGC GCGTTTCCAC CTTGATGCCA AATAAGCGCC	3720
	TTCCATCAGC TTGCTGAGGA GCTGGGCCAC CGGCCGGCGC CGGTGGCGGC TGTGCTACCT	3780
40	CCCTGCCCTG AGCTTGAGCA GGGCCTTCTC TATCTGCCAC AGGAGCTAGC CTCCTGTGAC	3840
	AGTGTGTGA CATTTGAGCT AACTGACATT GTGACTGCC GCATGGCGGC CCCTAGCCAA	3900
	AGGAAAGCTG TTTTGTCCAC GCTGGTAGGC CGGTATGGCA GACGCACAAG GCTTTATGAT	3960
45	GCGGGTCACA CCGATGTCCG CGCCTCCCTT GCGCGCTTTA TTCCACTCT CGGGCGGGTT	4020
	ACTGCCACCA CCTGTGAACCT CTTTGAGCTT GTAGAGGCGA TGGTGGAGAA GGGCCAAGAC	4080
50	GGTTCAGCGG TCCTCGAGTT GGATTTGTGC AGCGGAGATG TCTCCCGCAT AACCTTTTTT	4140
	CAGAAGGATT GTAACAAGTT CACGACCGGC GAGACAATTG CGCATGGCAA AGTCGGTCAG	4200
	GGTATCTTCC GCTGGAGTAA GACGTTTTGT GCCCTGTTTG GCCCCTGGTT CCGTGCGATT	4260
55	GAGAAGGCTA TTCTATCCCT TTTACCACAA GCTGTGTTCT ACGGGGATGC TTATGACGAC	4320

	TCAGTATTCT CTGCTGCCGT GGCTGGCGCC AGCCATGCCA TGGTGTGTTGA AAATGATTTT	4380
	TCTGAGTTTG ACTCGACTCA GAATAACTTT TCCCTAGGTC TTGAGTGCGC CATTATGGAA	4440
5	GAGTGTGGTA TGCCCCAGTG GCTTGTGAGG TTGTACCATG CCGTCCGGTC GGCCTGGATC	4500
	CTGCAGGCCC CAAAAGAGTC TTTGAGAGGG TTCTGGAAGA AGCATTCTGG TGAGCCGGGC	4560
	AGCTTGCTCT GGAATACGGT GTGGAACATG GCAATCATTG CCCATTGCTA TGAGTTCCGG	4620
10	GACCTCCAGG TTGCCGCCTT CAAGGGCGAC GACTCGGTCT TCCTCTGTAG TGAATACCGC	4680
	CAGAGCCCAG GCGCCGGTTC GCTTATAGCA GGCTGTGGTT TGAAGTTGAA GGCTGACTTC	4740
15	CGGCCGATTG GGCTGTATGC CGGGGTTGTC GTGCCCCGGG GGCTCGGGGC CCTACCCGAT	4800
	GTGCTTCGAT TCGCCGGACG GCTTTCGGAG AAGAACTGGG GGCCTGATCC GGAGCGGGCA	4860
	GAGCAGCTCC GCCTCGCCGT GCAGGATTTT CTCCTAGGT TAACGAATGT GGCCAGATT	4920
20	TGTGTTGAGG TGGTGTCTAG AGTTTACGGG GTTTCCTCGG GTCTGTTCA TAACCTGATA	4980
	GGCATGCTCC AGACTATTGG TGATGGTAAG GCGCATTTTA CAGAGTCTGT TAAGCCTATA	5040
25	CTTGACCTTA CAACTCAAT TATGCACCGG TCTGAATGAA TAACATGTGG TTTGCTGCGC	5100
	CCATGGGTTT GCCACCATGC GGCCTAGGCC TCTTTTGCTG TTGTTCTCT TGTTCCTGCC	5160
	TATGTTGCCC GCGCCACCGA CCGGTCAGCC GTCTGGCCGC CGTCGTGGGC GCGCAGCGG	5220
30	CGGTACCGGC GGTGGTTTCT GGGGTGACCG GGTGATTCT CAGCCCTTCG CAATCCCCTA	5280
	TATTCATCCA ACCAACCCCT TTGCCCCAGA CGTTGCCGCT GCGTCGGGT CTGGACCTCG	5340
35	CCTTCGCCAA CCAGCCCGGC CACTTGGCTC CACTTGGCGA GATCAGGCC AGCGCCCTC	5400
	CGCTGCCTCC CGTCGCCGAC CTGCCACAGC CGGGGCTGCG GCGCTGACGG CTGTGGCGCC	5460
	TGCCCATGAC ACCTACCCG TCCCGGACGT TGATTCTCGC GGTGCAATTC TACGCCGCA	5520
40	GTATAATTTG TCTACTTCAC CCCTGACATC CTCTGTGGCC TCTGGCACTA ATTTAGTCTT	5580
	GTATGCAGCC CCCCTTAATC CGCCTCTGCC GCTGCAGGAC GGTACTAATA CTCACATTAT	5640
45	GGCCACAGAG GCCTCCAATT ATGCACAGTA CCGGGTTGCC CGCGCTACTA TCCGTTACCG	5700
	GCCCCTAGTG CCTAATGCAG TTGGAGGCTA TGCTATATCC ATTTCTTTCT GGCCTCAAAC	5760
	AACCACAACC CCTACATCTG TTGACATGAA TTCCATTACT TCCACTGATG TCAGGATTCT	5820
50	TGTTCAACCT GGCATAGCAT CTGAATTGGT CATCCCAAGC GAGCGCCTTC ACTACCGCAA	5880
	TCAAGGTTGG CGCTCGGTTG AGACATCTGG TGTTGCTGAG GAGGAAGCCA CCTCCGGTCT	5940
55	TGTCATGTTA TGCATACATG GCTCTCCAGT TAACTCTAT ACCAATACCC CTTATACCGG	6000

	TGCCCTTGGC TTACTGGACT TTGCCTTGA GCTTGAGTTT CGCAATCTCA CCACCTGTAA	6060
	CACCAATACA CGTGTGTCCG GTTACTCCAG CACTGCTCGT CACTCCGCCG GAGGGGCCGA	6120
5	CGGGACTGCG GAGCTGACCA CAACTGCAGC CACCAGGTTG ATGAAAGATC TCCACTTTAC	6180
	CGGCCTTAAT GGGGTAGGTG AAGTCGGCGG CGGGATAGCT CTAACATTAC TTAACCTTGC	6240
10	TGACACGCTC CTCGGCGGGC TCCCGACAGA ATTAATTTGG TCGGCTGGCG GGCAACTGTT	6300
	TTATTCGGC CGGTTGTCT CAGCCATGG CGAGCCAACC GTGAAGCTCT ATACATCAGT	6360
	GGAGAATGCT CAGCAGGATA AGGGTGTTC TATCCCCAC GATATCGATC TTGGTGATTC	6420
15	GCGTGTGGTC ATTCAGGATT ATGACAACCA GCATGAGCAG GATCGGCCCA CCCGTCGCC	6480
	TGCGCCATCT CGGCCTTTTT CTGTTCTCG AGCAAATGAT GTACTTTGGC TGTCCTCAC	6540
20	TGCAGCCGAG TATGACCAGT CCACTTACGG GTCGTCAACT GGCCCGGTTT ATATCTCGGA	6600
	CAGCGTGACT TTGGTGAATG TTGCGACTGG CGCGCAGGCC GTAGCCCGAT CGCTTGACTG	6660
	GTCCAAAGTC ACCCTCGACG GCGGGCCCT CCGACTGTT GAGCAATATT CCAAGACATT	6720
25	CTTTGTGCTC CCCCTTCGTG GCAAGCTCTC CTTTGGGAG GCCGGCACAA CAAAAGCAGG	6780
	TTATCCTTAT AATTATAATA CTA CTACTGCTAG TGACCAGATT CTGATTGAAA ATGCTGCCGG	6840
30	CCATCGGGTC GCCATTTCAA CCTATACCAC CAGGCTTGGG GCCGGTCCGG TCGCCATTTT	6900
	TGCGGCCGCG GTTTTGGCTC CACGCTCCGC CCTGGCTCTG CTGGAGGATA CTTTGTATTA	6960
	TCCGGGGCGG GCGCACACAT TTGATGACTT CTGCCCTGAA TGCCGCGCTT TAGGCCTCCA	7020
35	GGGTGTGCT TTCCAGTCAA CTGTGCTGA GCTCCAGCGC CTTAAAGTTA AGGTGGGTAA	7080
	AACTCGGGAG TTGTAGTTTA TTTGGCTGTG CCCACCTACT TATATCTGCT GATTTCTTTT	7140
40	ATTTCTTTT TCTCGGTCCC GCGCTCCCTG A	7171

or a fifth sequence (SEQ ID NO.12):

	CGGGCCCCGT ACAGGTCACA ACCTGTGAGT TGTACGAGCT AGTGGAGGCC ATGGTCGAGA	60
45	AAGGCCAGGA TGGCTCCGCC GTCCTTGAGC TCGATCTCTG CAACCGTGAC GTGTCCAGGA	120
	TCACCTTTTT CCAGAAAGAT TGCAATAAGT TCACCACGGG AGAGACCATC GCCCATGGTA	180
	AAGTGGGCCA GGGCATTTCT GCCTGGAGTA AGACCTTCTG TGCCCTTTTC GGCCCTGGT	240
50	TCCGTGCTAT TGAGAAGGCT ATTCTGGCCC TGCTCCCTCA GGGTGTGTTT TATGGGGATG	300
	CCTTTGATGA CACCGTCTTC TCGGCGGCTG TGGCCGCAGC AAAGGCGTCC ATGGTGTGTTG	360
55	AGAATGACTT TTCTGAGTTT GACTCCACCC AGAATAATTT TTCCCTGGGC CTAGAGTGTG	420
	CTATTATGGA GAAGTGTGGG ATGCCAAGT GGCTCATCCG CTTGTACCAC CTTATAAGGT	480

CTGCGTGGAT CCTGCAGGCC CCGAAGGAST CCCTGCGAGG GTGTTGGAAG AAACACTCCG 540
 GTGAGCCCGG CACTCTTCTA TGGAACTCTG TCTGGAACAT GGCCGTTATC ACCCATTGTT 600
 5 ACGATTTCGG CGATTTCGAG GTGGCTGCCT TTAAAGGTGA TGATTGGATA GTGCTTTGCA 660
 GTGAGTACCG TCAGAGTCCA GGGGCTGCTG TCCTGATTGC TGGCTGTGGC TTAAAGCTGA 720
 10 AGGTGGGTTT CCGTCCGATT GGTTCGTATG CAGGTGTTGT GGTGACCCCC GGCCTTGGCG 780
 CGCTTCCCGA CGTCGTGGGC TTGTCCGGCC GGCTTACTGA GAAGAATTGG GGCCCTGGCC 840
 CTGAGCGGGG GGAGCAGCTC CGCCTTGCTG TGGC 874
 15
 or a sequence complementary thereto.

4. A protein which is (a) immunoreactive with
 antibodies present in individuals infected with
 20 enterically transmitted nonA/nonB hepatitis and (b)
 derived from a viral hepatitis agent whose genome
 contains a region which is homologous to the 1.33 kb
 DNA EcoRI insert present in plasmid pTZXF1(ET1.1)
 carried in E. coli strain BB4, and having ATCC
 25 Deposit Nno. 67717.

5. The protein of claim 4, which is encoded by
 a coding region within said 1.33 kb EcoRI insert.

30 6. A protein which is (a) immunoreactive with
 antibodies present in individuals infected with
 enterically transmitted nonA/nonB hepatitis and (b)
 encoded by genetic sequence 406.3-2 or 406.4-2 or a
 fragment thereof.

35 7. A method of detecting infection by
 enterically transmitted nonA/nonB hepatitis viral
 agent in a test individual, comprising:
 providing a peptide antigen which is (a)
 40 immunoreactive with antibodies present in individuals
 infected with enterically transmitted nonA/nonB
 hepatitis and (b) derived from a viral hepatitis agent
 whose genome contains a region which is homologous to

the 1.33 kb DNA EcoRI insert present in plasmid pTZKF1(ET1.1) carried in E. coli strain BB4, and having ATCC deposit no. 67717,

5 reacting serum from the test individual with such antigen, and
 examining the antigen for the presence of bound antibody.

8. The method of claim 7, wherein the serum
10 antibody is an IgM or IgG antibody, or a mixture of both, the antigen provided is attached to a support, said reacting includes contacting such serum with the support and said examining includes reacting the support and bound serum antibody with a reporter-
15 labeled anti-human antibody.

9. A kit for ascertaining the presence of serum antibodies which are diagnostic of enterically transmitted nonA/nonB hepatitis infection, comprising
20 a support with surface-bound recombinant peptide antigen which is (a) immunoreactive with antibodies present in individuals infected with enterically transmitted nonA/nonB viral hepatitis agent and (b) derived from a viral hepatitis agent
25 whose genome contains a region which is homologous to the 1.33 kb DNA EcoRI insert present in plasmid pTZKF1(ET1.1) carried in E. coli strain BB4, and having ATCC deposit no. 67717, and
 a reporter-labeled anti-human antibody.

30 10. A DNA fragment derived from an enterically transmitted nonA/nonB viral hepatitis agent whose genome contains a region which is homologous to the 1.33 kb DNA EcoRI insert present in plasmid
35 pTZKF1(ET1.1) carried in E. coli strain BB4 and having ATCC deposit no. 67717.

11. The fragment of claim 10, which is derived from said 1.33 kb EcoRI insert.

12. A DNA molecule comprising genetic sequence 406.3-2 or 406.4-2 or a fragment thereof, wherein said fragment comprises at least 12 consecutive nucleotides.

13. A DNA fragment derived from an enterically transmitted nonA/nonB viral hepatitis agent whose genome contains a region which is homologous to a DNA fragment within a first sequence (SEQ ID NO.1):

	AGACCTGTCC CTGTTGCAGC TGTTCTACCA CCCTGCCCCG AGCTCGAACA GGGCCTTCTC	60
15	TACCTGCCCC AGGAGCTCAC CACCTGTGAT AGTGTCTGTA CATTTGAATT AACAGACATT	120
	GTGCACTGCC GCATGGCCGC CCCGAGCCAG CGCAAGGCCG TGCTGTCCAC ACTCGTGGGC	180
	CGCTACGGCG GTCGCACAAA GCTCTACAAT GCTTCCCACT CTGATGTTCTG CGACTCTCTC	240
20	GCCCGTTTTA TCCCGGCCAT TGGCCCCGTA CAGGTTACAA CTTGTGAATT GTACGAGCTA	300
	GTGGAGGCCA TGGTCGAGAA GGGCCAGGAT GGCTCCGCCG TCCTTGAGCT TGATCTTTGC	360
25	AACCGTGACG TGTCCAGGAT CACCTTCTTC CAGAAAGATT GTAACAAGTT CACCACAGGT	420
	GAGACCATTG CCCATGGTAA AGTGGGCCAG GGCATCTCGG CCTGGAGCAA GACCTTCTGC	480
	GCCCTCTTTG GCCCTTGGTT CCGCGCTATT GAGAAGGCTA TTCTGGCCCT GCTCCCTCAG	540
30	GGTGTGTTTT ACGGTGATGC CTTTGATGAC ACCGTCTTCT CGGCGGCTGT GGCCGCAGCA	600
	AAGGCATCCA TGGTGTGTTGA GAATGACTTT TCTGAGTTTG ACTCCACCCA GAATACTTT	660
35	TCTCTGGGTC TAGAGTGTGC TATTATGGAG GAGTGTGGGA TGCCGCAGTG GCTCATCCGC	720
	CTGTATCACC TTATAAGGTC TGGTGGATC TTGCAGGCCG CGAAGGAGTC TCTGCGAGGG	780
	TTTTGGAAGA AACACTCCGG TGAGCCCGGC ACTCTTCTAT GGAATACTGT CTGGAATATG	840
40	GCCGTATTA CCCACTGTTA TGACTTCGCG GATTTTCAGG TGGCTGCCTT TAAAGGTGAT	900
	GATTCGATAG TGCTTTGCAG TGAGTATCGT CAGAGTCCAG GAGCTGCTGT CCTGATCGCC	960
45	GGCTGTGGCT TGAAGTTGAA GGTAGATTTC CGCCCGATCG GTTTGTATGC AGGTGTTGTG	1020
	GTGGCCCCCG GCCTTGGCGC GCTCCCTGAT GTTGTGCGCT TCGCCGGCCG GCTTACCGAG	1080
50	AAGAATTGGG GCCCTGGCCC TGAGCGGGCG GAGCAGCTCC GCCTCGCTGT TAGTGATTTT	1140

	CTCCGCAAGC TCACGAATGT AGCTCAGATG TGTGTGGATG TTGTTTCCCG TGTTTATGGG	1200
	GTTTCCCTG GACTCGTTCA TAAGCTGATT GGCATGCTAC AGGCTGTTGC TGATGGCAAG	1260
5	GCACATTTCA CTGAGTCAGT AAAACGAGTG CTCGA	1295
a second sequence (SEQ ID NO.5):		
	TCGAGCACTG GTTTTACTGA CTCAGTGAAG TGTGCCTTGC CATCAGCAAC AGCCTGTAGC	60
10	ATGCCAATCA GGTATGAAC GAGTCCAGGG GAAACCCCAT AAACACGGGA AACAACATCC	120
	ACACACATCT GAGCTACATT CGTGAAGTTG CGGAGGAAAT CACTAACAGC GAGGCGGAGC	180
15	TGCTCCGCCC GCTCAGGGCC AGGGCCCAA TTCTTCTCGG TAAGCCGGCC GGCGAAGCGC	240
	ACAACATCAG GGAGCGCGCC AAGGCCGGG GCCACCACAA CACCTGCATA CAAACCGATC	300
	GGGCGGAAAT CTACCTTCAA CTTCAAGCCA CAGCGGGCGA TCAGGACAGC AGCTCCTGGA	360
20	CTCTGACGAT ACTCACTGCA AAGCACTATC GAATCATCAC CTTTAAAGGC AGCCACCTGA	420
	AAATCGCGGA AGTCATAACA GTGGGTAATA ACGGCCATAT TCCAGACAGT ATTCCATAGA	480
25	AGAGTGCCGG GCTCACCGBA GTGTTTCTTC CAAAACCTC GCAGAGACTC CTTGCGGGCC	540
	TGCAAGATCC ACGCAGACCT TATAAGGTGA TACAGGCGGA TGAGCCACTG CGGCATCCCA	600
	CACTCCTCCA TAATAGCACA CTCTAGACCC AGAGAAAAGT TATTCTGGGT GGAGTCAAAC	660
30	TCAGAAAAGT CATTCTCAA CACCATGGAT GCCTTTGCTG CGGCCACAGC CGCCGAGAAG	720
	ACGGTGTCT CAAAGGCATC ACCGTAAAAC ACACCCTGAG GGAGCAGGGC CAGAATAGCC	780
35	TTCTCAATAG CGCGGAACCA AGGGCCAAAG AGGGCGCAGA AGGTCTTGCT CCAGGCCGAG	840
	ATGCCCTGGC CCACTTTACC ATGGGCAATG GTCTCACCTG TGGTGAACCT GTTACAATCT	900
	TTCTGGAAGA AGGTGATCCT GGACACGTCA CGGTTGCAAA GATCAAGCTC AAGGACGGCG	960
40	GAGCCATCCT GGCCCTTCTC GACCATGGCC TCCACTAGCT CGTACAATTC ACAAGTTGTA	1020
	ACCTGTACGG GGCCAATGGC CGGGATAAAA CGGGCGAGAG AGTCGCGAAC ATCAGAGTGG	1080
45	GAAGCATTGT AGAGCTTTGT GCGACCGCCG TAGCGGCCCA CGAGTGTTGA CAGCACGGCC	1140
	TTGCGCTGGC TCGGGGCGGC CATGCGGCAG TGCACAATGT CTGTTAATTC AAATGTTACG	1200
	ACACTATCAC AGGTGGTGAG CTCCTGGGGC AGGTAGAGAA GGCCCTGTTT GAGCTCGGGG	1260
50	CAGGGTGGTA GAACAGCTGC AACAGGGACA GGTCT	1295
a third sequence (SEQ ID NO.6):		
	AGGCAGACCA CATATGTGGT CGATGCC ATGGAGGCC ATCAGTTTAT TAAGGCTCCT	57
55	GGCATCACTA CTGCTATTGA GCAGGCTGCT CTAGCAGCG CCAACTCTGC CCTGGCGAAT	117

	GCTGTGGTAG TTAGGCCTTT TCTCTCTCAG CAGCAGATTG AGATCCTCAT TAACCTAATG	177
5	CAACCTCGCC AGCTTGTTTT CCGCCCGGAG GTTTTCTGGA ATCATCCCAT CCAGCGTGTC	237
	ATCCATAACG AGCTGGAGCT TTACTGCGCG GCCCGCTCCG GCCGCTGTCT TGAAATTGGC	297
	GCCCATCCCG GCTCAATAAA TGATAATCCT AATGTGGTCC ACCGCTGCTT CCTCCGCCCT	357
10	GTTGGGCGTG ATGTTGAGCG CTGGTATACT GCTCCCACTC GCGGGCCGGC TGCTAATTGC	417
	CGGCGTTCCG CGCTGCGCGG GCTTCCCGCT GCTGACCGCA CTTACTGCCT CGACGGGTTT	477
	TCTGGCTGTA ACTTTCCCGC CGAGACTGGC ATCGCCCTCT ACTCCCTTCA TGATATGTCA	537
15	CCATCTGATG TCGCCGAGGC CATGTTCCGC CATGGTATGA CGCGGCTCTA TGCCGCCCTC	597
	CATCTTCCGC CTGAGGTCTT GCTGCCCCCT GGCACATATC GCACCGCATC GTATTTGCTA	657
20	ATTCATGACG GTAGGCGCGT TGTGGTGACG TATGAGGGTG ATACTAGTGC TGGTTACAAC	717
	CACGATGTCT CCAACTTGCG CTCCTGGATT AGAACCACCA AGGTTACCGG AGACCATCCC	777
	CTCGTTATCG AGCGGGTTAG GGCCATTGGC TGCCACTTTG TTCTCTTGCT CACGGCAGCC	837
25	CCGGAGCCAT CACCTATGCC TTATGTTCTT TACCCCCGGT CTACCGAGGT CTATGTCCGA	897
	TCGATCTTCG GCCCGGGTGG CACCCCTTCC TTATTCCCAA CCTCATGCTC CACTAAGTCG	957
30	ACCTTCCATG CTGTCCCTGC CCATATTTGG GACCGTCTTA TGCTGTTCGG GGCCACCTTG	1017
	GATGACCAAG CCTTTTGCTG CTCCCGTTTA ATGACCTACC TTCGCGGCAT TAGCTACAAG	1077
	GTCACTGTTG GTACCCTTGT GGCTAATGAA GGCTGGAATG CCTCTGAGGA CGCCCTCACA	1137
35	GCTGTTATCA CTGCCGCTA CCTTACCATT TGCCACCAGC GGTATCTCCG CACCCAGGCT	1197
	ATATCCAAGG GGATGCGTCG TCTGGAACGG GAGCATGCCC AGAAGTTTAT AACACGCCTC	1257
40	TACAGCTGGC TCTTCGAGAA GTCCGGCCGT GATTACATCC CTGGCCGTCA GTTGGAGTTC	1317
	TACGCCAGT GCAGGCGCTG GCTCTCCGCC GGCTTTTCATC TTGATCCACG GGTGTTGGTT	1377
	TTTGACGAGT CGGCCCCCTG CCATTGTAGG ACCGCGATCC GTAAGGCGCT CTCAAAGTTT	1437
45	TGCTGCTTCA TGAAGTGGCT TGGTCAGGAG TGCACCTGCT TCCTTCAGCC TGCAGAAGGC	1497
	GCCGTCGGCG ACCAGGGTCA TGATAATGAA GCCTATGAGG GGTCCGATGT TGACCCTGCT	1557
50	GAGTCGCCA TTAGTGACAT ATCTGGGTCC TATGTCGTCC CTGGCACTGC CCTCCAACCG	1617
	CTCTACCAGG CCCTCGATCT CCCCCTGAG ATTGTGGCTC GCGCGGGCCG GCTGACCGCC	1677
	ACAGTAAAGG TCTCCAGGT CGATGGGCGG ATCGATTGCG AGACCTTCTT TGGTAACAAA	1737
55	ACCTTTCGCA CGTCGTTCTT TGACGGGCGG GTCTTAGAGA CCAATGGCCC AGAGCGCCAC	1797

	AATCTCTCCT TCGATGCCAG TCAGAGCACT ATGGCCGCTG GCCCTTTCAG TCTCACCTAT	1857
	GCCGCCTCTG CAGCTGGGCT GGAGGTGGGC TATGTTGCTG CCGGGCTTGA CCATCGGGCG	1917
5	GTTTTTGCCC CCGGTGTTTC ACCCGGTCA GCGCCGGGG AGGTTACCGC CTTCTGCTCT	1977
	GCCCTATACA GGTTTAAGCG TGAGGCCGAG CCGCATTCGC TGATCGGTAA CTTATGGTTC	2037
10	CATCCTGAGG GACTCATTGG CCTCTTGGCC CGTTTTTCGC CCGGGCATGT TTGGGAGTCG	2097
	GCTAATCCAT TCTGTGGCGA GAGCACATT TACACCGTA CTTGGTCGGA GGTGATGCC	2157
	GTCTCTAGTC CAGCCCGGCC TGACTTAGGT TTTATGTCTG AGCCTTCTAT ACCTAGTAGG	2217
15	GCCGCCACGC CTACCTGGC GGCCCTCTA CCGCCCGCTG CACCGGACCC TTCCCCCCT	2277
	CCCTCTGCCC CGGCGCTTG TGAGCCGCT TCTGGCGTA CCGCCGGGG CCCGGCCATA	2337
20	ACTCACCAGA CGGCCGGGCA CCGCGGCTG CTCTTCACT ACCCGGATGG CTCTAAGGTA	2397
	TTCGCCGGCT CGCTGTTTCA GTCGACATGC ACGTGGCTCG TTAACGCGTC TAATGTTGAC	2457
	CACCGCCCTG GCGGCGGGCT TTGCCATGCA TTTTACCAA GGTACCCCGC CTCCTTTGAT	2517
25	GCTGCCTCTT TTGTGATGG CGACGGCGCG GCGCGTACA CACTAACCCC CCGGCCAATA	2577
	ATTCACGCTG TCGCCCTGA TTATAGGTTG GAACATAACC CAAAGAGGCT TGAGGCTGCT	2637
30	TATCGGGAAA CTTGCTCCCG CCTCGGCACC GCTGCATACC CGCTCCTCGG GACCGGCATA	2697
	TACCAGGTGC CGATCGGCC CAGTTTTGAC GCCTGGGAGC GGAACCACCG CCCCGGGGAT	2757
	GAGTTGTACC TTCCTGAGCT TGCTGCCAGA TGGTTTGAGG CCAATAGGCC GACCCGCCCC	2817
35	ACTCTACTA TAACTGAGGA TGTTGCACGG ACAGCGAATC TGGCCATCGA GCTTGACTCA	2877
	GCCACAGATG TCGGCCGGGC CTGTGCCGGC TGTCGGGTCA CCCCCGGCGT TGTTCAGTAC	2937
40	CAGTTTACTG CAGGTGTGCC TGGATCCGGC AAGTCCCGCT CTATACCCA AGCCGATGTG	2997
	GACGTTGTCG TGGTCCCGAC GCGTGAGTTG CGTAATGCCT GGCGCCGTCG CGGCTTTGCT	3057
	GCTTTTACCC CGCATACTGC CGCCAGAGTC ACCCAGGGGC GCCGGGTTGT CATTGATGAG	3117
45	GCTCCATCCC TCCCCCTCA CCTGCTGCTG CTCACATGC AGCGGGCCGC CACCGTCCAC	3177
	CTTCTTGGCG ACCCGAACCA GATCCAGCC ATCGACTTTG AGCACGCTGG GCTCGTCCCC	3237
50	GCCATCAGGC CCGACTTAGG CCCCACCTCC TGGTGGCATG TTACCCATCG CTGGCCTGCG	3297
	GATGTATGCG AGCTCATCCG TGGTGCATC CCGATGATC AGACCACTAG CCGGGTTCTC	3357
	CGTTCGTTGT TCTGGGGTGA GCCTGCCCTC GGGCAGAAAC TAGTGTTTAC CCAGGCGGCC	3417
55	AAGCCCGCCA ACCCGGGCTC AGTACGGTC CACGAGGCGC AGGGCGCTAC CTACACGGAG	3477

	ACCACTATTA TTGCCACAGC AGATGCCCGG GGCCTTATTC AGTCGTCTCG GGCTCATGCC	3537
5	ATTGTTGCTC TGACGCGCCA CACTGAGAAG TGCCTCATCA TTGACGCACC AGGCCTGCTT	3597
	CGCGAGGTGG GCATCTCCGA TGCAATCGTT AATAACTTTT TCCTCGCTGG TGGCGAAATT	3657
	GGTCACCAGC GCCCATCAGT TATTCGCCST GGCACCCCTG ACGCCAATGT TGACACCCTG	3717
10	GCTGCCCTTC CGCCGTCTTG CCAGATTAGT GCCTTCATC AGTTGGCTGA GGAGCTTGGC	3777
	CACAGACCTG TCCCTGTTGC AGCTGTCTA CCACCCTGCC CCGAGCTCGA ACAGGGCCTT	3837
	CTCTACCTGC CCCAGGAGCT CACCACCTGT GATAGTGTG TAACATTTGA ATTAACAGAC	3897
15	ATTGTGCACT GCCGCATGGC CGCCCCGAGC CAGCGCAAGG CCGTGCTGTC CAACTCGTG	3957
	GGCCGCTACG GCGGTGCGAC AAAGCTCTAC AATGCTTCCC ACTCTGATGT TCGCGACTCT	4017
20	CTCGCCCGTT TTATCCCGGC CATTGGCCCC GTACAGGTTA CAACTTGTGA ATTGTACGAG	4077
	CTAGTGGAGG CCATGGTCGA GAAGGGCCAG GATGGCTCCG CCGTCCTTGA GCTTGATCTT	4137
	TGCAACCGTG ACGTGTCAG GATCACCTTC TTCCAGAAAG ATTGTAACAA GTTCACCACA	4197
25	GGTGAGACCA TTGCCATGG TAAAGTGGG CAGGGCATCT CGGCCTGGAG CAAGACCTTC	4257
	TGCGCCCTCT TTGGCCCTTG GTTCCGCGCT ATTGAGAAGG CTATTCTGGC CCTGCTCCCT	4317
30	CAGGGTGTGT TTTACGGTGA TGCTTTGAT GACACCGTCT TCTCGGCGGC TGTGGCCGCA	4377
	GCAAAGGCAT CCATGGTGTT TGAGAATGAC TTTTCTGAGT TTGACTCCAC CCAGAATAAC	4437
	TTTTCTCTGG GTCTAGAGTG TGCTATTATG GAGGAGTGTG GGATGCCGCA GTGGCTCATC	4497
35	CGCCTGTATC ACCTTATAAG GTCTGCGTGG ATCTTGCAAG CCCCGAAGGA GTCTCTGCGA	4557
	GGGTTTTGGA AGAAACACTC CGGTGAGCCC GGCACCTTTC TATGGAATAC TGTCTGGAAT	4617
40	ATGGCCGTTA TTACCCACTG TTATGACTTC CGCGATTTTC AGGTGGCTGC CTTAAAGGT	4677
	GATGATTGCA TAGTGCTTTG CAGTGAGTAT CGTCAGAGTC CAGGAGCTGC TGTCTGATC	4737
	GCCGGCTGTG GCTTGAAGTT GAAGGTAGAT TTCCGCCCGA TCGGTTTGTA TGCAGGTGTT	4797
45	GTGGTGGCCC CCGGCCTTGG CGCGCTCCCT GATGTTGTGC GCTTCGCCGG CCGGCTTACC	4857
	GAGAAGAATT GGGGCCCTGG CCTGAGCGG GCGGAGCAGC TCCGCCTCGC TGTTAGTGAT	4917
50	TTCTCCGCA AGCTCACGAA TGAGCTCAG ATGTGTGTGG ATGTTGTTTC CCGTGTAT	4977
	GGGGTTTCCC CTGGACTCGT TCATAACCTG ATTGGCATGC TACAGGCTGT TGCTGATGGC	5037
	AAGGCACATT TCACTGAGTC AGTAAACCA GTGCTCGACT TGACAAATTC AATCTTGTGT	5097
55	CGGGTGGAAT GA ATAACATGTC TTTTGCTGCG CCCATGGGTT CGCGACCATG	5149

	CGCCCTCGGC CTATTTTGGT GGTGCTGCTC ATGTTTTTGC CTATGCTGCC CGCGCCACCG	5209
5	CCCGGTGAGC CGTCTGGCCG CGTCTGTGGG CGGCGCAGCG GCGGTTCCGG CGGTGGTTTC	5269
	TGGGGTGACC GGGTTGATTC TCAGGCTTC GCAATCCCT ATATTCATCC AACCAACCCC	5329
	TTCCGCCCGG ATGTCAGCGG TCGGCGGGG GGTGGACCTC GTGTTGCGCA ACCCGCCCGA	5389
10	CCACTCGGCT CCGCTTGGCG TGACGAGGC CAGCGCCCGG CCGTTGCCTC ACGTCGTAGA	5449
	CCTACCACAG CTGGGGCCGC GCGGCTAA CCGGCGTGC TCCGGCCCAT GACACCCCGC	5507
15	CAGTGCTGA TGTCGACTCC CGCGGCGCCA TCTTGCGCGG GCAGTATAAC CTATCAACAT	5567
	CTCCCTTAC CTCTTCGTG GCCACCGCA CTAACCTGGT TCTTTATGCC GCCCTCTTA	5627
	GTCCGCTTTT ACCCCTTCAG GACGGCAGCA ATACCCATAT AATGGCCAGG GAAGCTTCTA	5687
20	ATTATGCCCA GTACCGGGTT GCCCGTGCCA CAATCGTTA CCGCCCGCTG GTCCCAATG	5747
	CTGTGGGCGG TTACGCCATC TCCATCTCAT TCTGGCCACA GACCACCACC ACCCGACGT	5807
25	CCGTTGATAT GAATTCAATA ACCTCGACGG ATGTTGCTAT TTAGTCCAG CCCGGCATAG	5867
	CCTCTGAGCT TGTGATCCA AGTGAGCGCC TACACTATCG TAACCAAGGC TGGCGCTCCG	5927
	TCGAGACCTC TGGGGTGGCT GAGGAGGAGG CTACCTCTGG TCTTGTTATG CTTTGCATAC	5987
30	ATGGCTCACT CGTAAATTCC TATACTAATA CACCTATAC CCGTGCCCTC GGGCTGTTGG	6047
	ACTTTGCCCT TGAGCTTGAG TTTCGCAACC TTACCCCGG TAACACCAAT ACGCGGTCT	6107
35	CCCGTTATTC CAGCACTGCT CGCCACCGCC TTCGTCGCGG TCGGACGGG ACTGCCGAGC	6167
	TCACCACCAC GGCTGCTACC CGCTTTATGA AGGACCTCTA TTTTACTAGT ACTAATGGTG	6227
	TCGGTGAGAT CGGCCGCGGG ATAGCCCTCA CCTGTTCOA CCTTGCTGAC ACTCTGCTTG	6287
40	GCGGCCTGCC GACAGAATTG ATTTGCTCGG CTGGTGGCCA GCTGTTCTAC TCCCGTCCCG	6347
	TTGTCTCAGC CAATGGCGAG CCGACTGTTA AGTTGTATAC ATCTGTAGAG AATGCTCAGC	6407
45	AGGATAAGGG TATTGCAATC CCGCATGACA TTGACCTCGG AGAATCTCGT GTGGTTATTC	6467
	AGGATTATGA TAACCAACAT GAACAAGATC GGCGGACGCC TTCTCCAGCC CCATCGCGCC	6527
	CTTTCTCTGT CCTTCGAGCT AATGATGTGC TTGGCTCTC TCTACCGCT GCCGAGTATG	6587
50	ACCAGTCCAC TTATGGCTCT TCGACTGGCC CAGTTTATGT TTCTGACTCT GTGACCTTGG	6647
	TTAATGTTGC GACCGGCGCG CAGGCGGTTG CCGGCTCGCT CGATTGGACC AAGGTCACAC	6707
55	TTGACGGTGC CCCCCTCTCC ACCATCAGC AGTACTCGAA GACCTTCTTT GTCTGCCGC	6767
	TCCGCGGTAA GCTCTCTTTC TGGGAGGAG GCACAACATA AGCCGGGTAC CCTTATAATT	6827

	ATAACACCAC TGCTAGCGAC CAACTGCTTG TCGAGAATGC CGCCGGGCAC CGGGTCGCTA	6887
	TTTCCACTTA CACCACTAGC CTGGGTGCTG GTCCCGTCTC CATTCTGCG GTTGCCGTTT	6947
5	TAGCCCCCA CTCTGCGCTA GCATTGCTTG AGGATACCTT GGACTACCCT GCCCGCGCCC	7007
	ATACTTTTGA TGATTCTGC CCAGAGTGC GCGCCCTTGG CTTTCAGGGC TGCCTTTTC	7067
10	AGTCTACTGT CGCTGAGCTT CAGCGCCTTA AGATGAAGGT GGGTAAACT CGGGAGTTGT	7127
	AG TTTATTGCT TGTGCCCCC TTCTTTCTGT TGCTATTTC TCATTCTGC	7179
	GTTCCGCGCT CCTGA	7195

15 a fourth sequence (SEQ ID NO.10):

	GCCATGGAGG CCCACCAGTT CATTAAAGCT CCTGGCATCA CTACTGCTAT TGAGCAAGCA	60
	GCTCTAGCAG CGGCCAACTC CGCCCTTGG AATGCTGTGG TGGTCCGGCC TTTCTTTCC	120
20	CATCAGCAGG TTGAGATCCT TATAAATCTC ATGCAACCTC GGCAGCTGGT GTTTCGTCCT	180
	GAGGTTTTTT GGAATCACCC GATTCAACGT GTTATACATA ATGAGCTTGA GCAGTATTGC	240
25	CGTGCTCGCT CGGGTCGCTG CTTGAGATT GGAGCCCACC CACGCTCCAT TAATGATAAT	300
	CCTAATGTCC TCCATCGCTG CTTTCTCCAC CCCGTCGGCC GGGATGTTCA GCGCTGGTAC	360
	ACAGCCCCGA CTAGGGGACC TGCGGCGAAC TGTCGCCGT CGGCACTTCG TGGTCTGCCA	420
30	CCAGCCGACC GCACTTACTG TTTTGATGGC TTTGCCGGCT GCCGTTTGC CGCCGAGACT	480
	GGTGTGGCTC TCTATTCTCT CCATGACTTG CAGCCGGCTG ATGTTGCCGA GGCATGGCT	540
35	CGCCACGGCA TGACCCGCTT TTATGCAGCT TTCCACTTGC CTCCAGAGGT GCTCCTGCCT	600
	CCTGGCACCT ACCGGACATC ATCCTACTTG CTGATCCACG ATGGTAAGCG CGCGGTTGTC	660
	ACTTATGAGG GTGACACTAG CGCCGGTTAC AATCATGATG TTGCCACCCT CCGCACATGG	720
40	ATCAGGACAA CTAAGGTTGT GGGTGAACAC CCTTGGTGA TCGAGCGGGT GCGGGGTATT	780
	GGCTGTCACT TTGTGTTGTT GATCACTGCG GCGCCTGAGC CCTCCCGAT GCCCTACGTT	840
45	CCTTACCCGC GTTCGACGGA GGTCTATGTC CGGTCTATCT TTGGGCCCGG CGGGTCCCG	900
	TCGCTGTTCC CGACCGCTTG TGCTGTCAAG TCCACTTTTC ACGCCGTCCC CACGCACATC	960
	TGGGACCGTC TCATGCTCTT TGGGGCCACC CTCGACGACC AGGCCTTTTG CTGCTCCAGG	1020
50	CTTATGACGT ACCTTCGTGG CATTAGCTAT AAGGTAAGT TGGGTGCCCT GGTGCTAAT	1080
	GAAGGCTGGA ATGCCACCGA GGATGCGCTC ACTGCAGTTA TTACGGCGGC TTACCTCACA	1140
55	ATATGTCATC AGCGTTATTT GCGGACCCAG GCGATTCTA AGGGCATGCG CCGGCTTGAG	1200

	CTTGAACATG CTGAGAAATT TATTTGAGCG CTGTACAGCT GGCTATTTGA GAAGTCAGGT	1260
	CGTGATTACA TCCGAGGCGG CCAGGTGAG TTGTAGGCTC AGTGCCGCGG CTGGTTATCT	1320
5	GCCGGGTTCC ATCTCGACCC CGGCAGCTTA GTTTTGATG AGTCAGTGCC TTGTAGCTGC	1380
	CGAACCACCA TCCGGGGAT CGCTGGAAA TTTTGCTGTT TTATGAAGTG GCTCGGTCAG	1440
10	GAGTGTTCTT GTTTCCTCCA GCGCGCGAG GGGCTGGCGG GCGACCAAGG TCATGACAAT	1500
	GAGGCCTATG AAGGCTCTGA TGTGATACT GGTGAGCCTG CCACCCTAGA CATTACAGGC	1560
	TCATACATCG TGGATGGTCG GTCTCTGAA ACTGTCTATC AAGCTCTCGA CCTGCCAGCT	1620
15	GACCTGGTAG CTGCGGCAGC CCGACTGTCT GCTACAGTTA CTGTTACTGA AACCTCTGGC	1680
	CGTCTGGATT GCCAAACAAT GATCGGCAAT AAGACTTTTC TCACTACCTT TGTGATGGG	1740
20	GCACGCCTTG AGGTTAACGG GCGTGAGCAG CTTAACCTCT CTTTGTACAG CCAGCAGTGT	1800
	AGTATGGCAG CCGGCCCGTT TTGCTCACC TATGCTGCCG TAGATGGCGG GCTGGAAGTT	1860
	CATTTTTCCA CCGCTGGCCT CGAGAGCCGT GTTGTTTTC CCCCTGGTAA TGCCCCGACT	1920
25	GCCCCGCCGA GTGAGGTCAC CGCCTCTGC TCAGCTCTTT ATAGGCACAA CCGGCAGAGC	1980
	CAGCGCCAGT CGGTTATTGG TAGTTTGTGG CTGCACCCTG AAGGTTTGCT CGGCCTGTTT	2040
30	CCGCCCTTTT CACCCGGGCA TGAGTGGCGG TCTGCTAACC CATTTTGGG CGAGAGCACG	2100
	CTCTACACCC GCACTTGGTC CACAATTACA GACACACCCT TAACTGTGG GCTAATTTCC	2160
	GGTCATTTGG ATGCTGCTCC CCACTCGGGG GGGCCACCTG CTA CTGCCAC AGGCCCTGCT	2220
35	GTAGGCTCGT CTGACTCTCC AGACCCTGAC CCGCTACCTG ATGTTACAGA TGGCTCACGC	2280
	CCCTCTGGGG CCGTCCGGC TGGCCCCAAC CCGAATGGCG TTCCGCAGCG CCGCTTACTA	2340
40	CACACCTACC CTGACGGCGC TAAGATCTAT GTCGGCTCCA TTTTCGAGTC TGAGTGCACC	2400
	TGGCTTGTC ACGCATCTAA CGCCGGCCAC CGCCTGGTG GCGGGCTTTG TCATGCTTTT	2460
	TTTCAGCGTT ACCCTGATTC GTTTCAGGCC ACCAAGTTT TGATGCGTGA TGGTCTTGCC	2520
45	GCGTATACCC TTACACCCCG GCGATCATT CATGCGGTGG CCGCGGACTA TCGATTGGAA	2580
	CATAACCCCA AGAGGCTCGA GGCTGCCTAC CGGAGACTT GCGCCCGCCG AGGCACTGCT	2640
50	GCCTATCCAC TCTTAGGCGC TGGCATTTAC CAGGTGCCTG TTAGTTTGAG TTTTGATGCC	2700
	TGGGAGCGGA ACCACGCCC GTTTGACGAG CTTTACCTAA CAGAGCTGGC GGCTCGGTGG	2760
	TTTGAATCCA ACCGCCCGG TCAGCCACG TTGAACATAA CTGAGGATAC CGCCCGTGCG	2820
55	GCCAACTGG CCCTGGAGCT TGA CTCCGGG AGTGAAGTAG GCCGCGCATG TGCCGGGTGT	2880

	AAAGTCGAGC CTGGCGTTGT GCGGTATCAG TTTACAGCCG GTGTCCCCGG CTCTGGCAAG	2940
	TCAAAGTCCG TGCAACAGGC GGATGTGGAT GTTGTGTGTG TGCCCACTCG CGAGCTTCGG	3000
5	AACGCTTGGC GGCGCCGGGG CTTTGCGGCA TTCACTCCGC ACACTGCGGC CCGTGCTACT	3060
	AGCGGCCGTA GGGTTGTCAT TGATGAGGCG CTTTGGCTCC CCCCACACTT GCTGCTTTTA	3120
10	CATATGCAGC GTGCTGCATC TGTGCACCTC CTTGGGGACC CGAATCAGAT CCCC GCCATA	3180
	GATTTTGAGC ACACCGGTCT GATTCCAGCA ATACGGCCGG AGTTGGTCCC GACTTCATGG	3240
	TGGCATGTCA CCCACCGTTG CCCTGCAGAT GTCTGTGAGT TAGTCCGTGG TGCTTACCCT	3300
15	AAAATCCAGA CTACAAGTAA GGTGCTCCGT TCCCTTTTCT GGGGAGAGCC AGCTGTCGGC	3360
	CAGAAGCTAG TGTTCACACA GGCTGCTAAG GCCGCGCACC CCGGATCTAT AACGGTCCAT	3420
20	GAGGCCCAGG GTGCCACTTT TACCACTACA ACTATAATTG CAACTGCAGA TGCCCGTGGC	3480
	CTCATACAGT CCTCCCGGGC TCACGCTATA GTTGCTCTCA CTAGGCATAC TGAAAAATGT	3540
	GTTATACTTG ACTCTCCCGG CCTGTTGCGT GAGGTGGGTA TCTCAGATGC CATTGTTAAT	3600
25	AATTTCTTCC TTTCCGGTGG CGAGGTTGGT CACCAGAGAC CATCGGTCAT TCCGCGAGGC	3660
	AACCTTGACC GCAATGTTGA CGTGCTTGGC GCGTTTCCAC CTTTCATGCCA AATAAGCGCC	3720
30	TTCCATCAGC TTGCTGAGGA GCTGGGCCAC CGGCCGGCGC CGGTGGCGGC TGTGCTACCT	3780
	CCCTGCCCTG AGCTTGAGCA GGGCCTTCTC TATCTGCCAC AGGAGCTAGC CTCCTGTGAC	3840
	AGTGTGTGA CATTTGAGCT AACTGACATT GTGCACTGCC GCATGGCGGC CCCTAGCCAA	3900
35	AGGAAAGCTG TTTTGTCCAC GCTGGTAGGC CGGTATGGCA GACGCACAAG GCTTTATGAT	3960
	GCGGGTCACA CCGATGTCCG CGCCTCCCTT GCGCGCTTTA TTCCCACTCT CGGGCGGGTT	4020
40	ACTGCCACCA CCTGTGAACT CTTTGAGCTT GTAGAGGCGA TGGTGGAGAA GGGCCAAGAC	4080
	GGTTCAGCCG TCCTCGAGTT GGATTTGTGC AGCCGAGATG TCTCCGCAT AACCTTTTTT	4140
	CAGAAGGATT GTAACAAGTT CACGACCGGC GAGACAATTG CGCATGGCAA AGTCGGTCAG	4200
45	GGTATCTTCC GCTGGAGTAA GACGTTTTGT GCCCTGTTTG GCCCCTGGTT CCGTGCGATT	4260
	GAGAAGGCTA TTCTATCCCT TTTACCACAA GCTGTGTTCT ACGGGGATGC TTATGACGAC	4320
50	TCAGTATTCT CTGCTGCCGT GGCTGGCGCC AGCCATGCCA TGGTGTGTTGA AAATGATTTT	4380
	TCTGAGTTTG ACTCGACTCA GAATAACTTT TCCCTAGGTC TTGAGTGCGC CATTATGGAA	4440
	GAGTGTGGTA TGCCCCAGTG GCTTGTGAGG TTGTACCATG CCGTCCGGTC GGC GTGGATC	4500
55	CTGCAGGCCC CAAAAGAGTC TTTGAGAGGG TTCTGGAAGA AGCATTCTGG TGAGCCGGGC	4560

	AGCTTGCTCT GGAATACGGT GTGGAACATG GCAATCATTG CCCATTGCTA TGAGTTCCGG	4620
	GACCTCCAGG TTGCCGCTT CAAGGGGAG GACTGGGTG TCCTCTGTAG TGAATACCGC	4680
5	CAGAGCCCAG GCGCGGTTG GCTTATAGCA GGCTGTGGT TGAAGTTGAA GGCTGACTTC	4740
	CGGCCGATTG GGCTGTATGC CGGGGTGTG GTGCGCCCGG GGCTCGGGGC CCTACCCGAT	4800
10	GTCGTTGAT TCGCCGAGG GCTTTCGAG AAGAACTGGG GGCTGATCC GGAGCGGGCA	4860
	GAGCAGCTCC GCCTCGCGT GAGGATTTC CTCGTAGGT TAACGAATGT GGCCAGATT	4920
	TGTGTTGAGG TGGTGTCTAG AGTTTACGG GTTTCCCGG GTCTGGTTCA TAACCTGATA	4980
15	GGCATGCTCC AGACTATTGG TGATGGTAAG GCGCATTTTA CAGAGTCTGT TAAGCCTATA	5040
	CTTGACCTTA CACACTCAAT TATGCACCGG TCTGAATGAA TAACATGTGG TTTGCTGCGC	5100
20	CCATGGGTTG GCCACCATGC GCCCTAGGCC TCTTTTGCTG TTGTTCTCT TGTTCCTGCC	5160
	TATGTTGCCC GCGCCACCGA CCGGTCAGCC GTCTGGCCGC CGTCGTGGGC GGCGCAGCGG	5220
	CGGTACCGGC GGTGGTTTCT GGGGTGACCG GGTGATTCT CAGCCCTTCG CAATCCCCTA	5280
25	TATTCATCCA ACCAACCCTT TTGCCCCAGA CGTTGCCGT GCGTCCGGGT CTGGACCTCG	5340
	CCTTCGCCAA CCAGCCCGGC CACTTGCTC CACTTGCGA GATCAGGCC AGCGCCCTC	5400
30	CGCTGCCCTC CGTCGCCGAC CTGCCACAGC CGGGGCTGCG GCGCTGACGG CTGTGGCGCC	5460
	TGCCCATGAC ACCTCACCG TCCCGGACGT TGATTCTCGC GGTGCAATC TACGCCGCCA	5520
	GTATAATTG TCTACTTCAC CCCTGACATC CTCTGTGGCC TCTGGCACTA ATTAGTCCT	5580
35	GTATGCAGCC CCCCTTAATC CGCCTCTGCC GCTGCAGGAC GGTACTAATA CTCACATTAT	5640
	GGCCACAGAG GCCTCCAATT ATGCACAGTA CCGGGTTGCC CGCGCTACTA TCCGTTACCG	5700
40	GCCCCTAGTG CCTAATGCAG TTGGAGGCTA TGCTATATCC ATTTCTTTCT GGCCTCAAC	5760
	AACCACAACC CCTACATCTG TTGACATGAA TTCCATTACT TCCACTGATG TCAGGATTCT	5820
	TGTTCAACCT GGCATAGCAT CTGAATTGGT CATCCCAAGC GAGCGCCTC ACTACCGCAA	5880
45	TCAAGGTTGG CGCTCGGTTG AGACATCTGG TGTGCTGAG GAGGAAGCCA CCTCCGGTCT	5940
	TGTCATGTTA TGCATACATG GCTCTCAGT TAACTCCTAT ACCAATACCC CTTATACCGG	6000
50	TGCCCTTGGC TTA CTGGACT TTGCCTAGA GCTTGAGTTT CGCAATCTCA CCACCTGTAA	6060
	CACCAATACA CGTGTGTCG GTTACTCCAG CACTGCTGT CACTCCGCC GAGGGGCCGA	6120
	CGGGACTGCG GAGCTGACCA CAATCGAGC CACCAGGTTT ATGAAAGATC TCCACTTTAC	6180
55	CGGCCTTAAT GGGGTAGGTG AAGTCGCGG CGGGATAGCT CTAACATTAC TTAACCTTGC	6240

	TGACACGCTC CTCGGCGGGC TCCGACAGA ATTAATTTGG TCGGCTGGCG GGCAACTGTT	6300
	TTATCCCGC CCGGTTGTCT CAGGCAATGG CGAGCCAACC GTGAAGCTCT ATACATCAGT	6360
5	GGAGAATGCT CAGCAGGATA AGGGTGTTC TATCCCCAC GATATCGATC TTGGTGATTC	6420
	GCGTGTGGTC ATTCAGGATT ATGACAACCA GCATGAGCAG GATCGGCCCA CCCCCTCGCC	6480
10	TGCGCATCT CGGCCTTTT CTGTTCTCG AGCAAATGAT GTACTTTGGC TGTCCTCAC	6540
	TGCAGCCGAG TATGACCAGT CCACTTACGG GTCGTCAACT GGCCCGGTTT ATATCTCGGA	6600
	CAGCGTGACT TTGGTGAATG TTGCGACTGG CGCGCAGGCC GTAGCCCGAT CGCTTGACTG	6660
15	GTCCAAAGTC ACCCTCGAGG GGCGGCCCT CCGACTGTT GAGCAATATT CCAAGACATT	6720
	CTTTGTGCTC CCCCTTCGTG GCAAGCTCTC CTTTGGGAG GCCGGCACAA CAAAAGCAGG	6780
20	TTATCCTTAT AATTATAATA CTACTGCTAG TGACCAGATT CTGATTGAAA ATGCTGCCGG	6840
	CCATCGGGTC GCCATTTCAA CCTATACCAC CAGGCTTGGG GCCGGTCCGG TCGCCATTTT	6900
	TGCGGCCGCG GTTTTGGCTC CACGCTCCGC CCTGGCTCTG CTGGAGGATA CTTTGTATTA	6960
25	TCCGGGGCGG GCGCACACAT TTGATGACTT CTGCCCTGAA TGCCGCGCTT TAGGCCTCCA	7020
	GGGTTGTGCT TTCCAGTCAA CTGTCGCTGA GCTCCAGCGC CTTAAAGTTA AGGTGGGTAA	7080
30	AACTCGGGAG TTGTAGTTTA TTTGGCTGTG CCCACCTACT TATATCTGCT GATTTCTTTT	7140
	ATTTCTTTT TCTCGGTCCC GCGCTCCCTG A	7171

or a fifth sequence (SEQ ID NO.12):

35	CGGGCCCCGT ACAGGTCACA ACCTGTGAGT TGTACGAGCT AGTGGAGGCC ATGGTCGAGA	60
	AAGGCCAGGA TGGCTCCGCC GTCCTTGAGC TCGATCTCTG CAACCGTGAC GTGTCCAGGA	120
	TCACCTTTTT CCAGAAAGAT TGCAATAAGT TCACCACGGG AGAGACCATC GCCCATGGTA	180
40	AAGTGGGCCA GGGCATTTTC GCCTGGAGTA AGACCTTCTG TGCCCTTTTC GGCCCTGGT	240
	TCCGTGCTAT TGAGAAGGCT ATTCTGGCCC TGCTCCCTCA GGGTGTGTTT TATGGGGATG	300
45	CCTTTGATGA CACCGTCTTC TCGGCGGTG TGCCCGCAGC AAAGGCGTCC ATGGTGTGTTG	360
	AGAATGACTT TTCTGAGTTT GACTCCACCC AGAATAATTT TTCCCTGGGC CTAGAGTGTG	420
	CTATTATGGA GAAGTGTGGG ATGCCGAAGT GGCTCATCCG CTTGTACCAC CTTATAAGGT	480
50	CTGCGTGGAT CCTGCAGGCC CCGAAGGAGT CCCTGCGAGG GTGTTGGAAG AAACACTCCG	540
	GTGAGCCCGG CACTCTTCTA TGAATACTG TCTGGAACAT GGCCGTTATC ACCCATTTGTT	600
55	ACGATTTCCG CGATTTGCAG GTGGCTGCCT TTAAAGGTGA TGATTCGATA GTGCTTTGCA	660
	GTGAGTACCG TCAGAGTCCA GGGGCTGCTG TCCTGATTGC TGGCTGTGGC TTAAAGCTGA	720

	AGGTGGGTTT CCGTCCGATT GGTTTGTATG CAGGTGTTGT GGTGACCCCC GGCCTTGGCG	780
5	CGCTTCCCGA CGTGGTGGCG TTGTCCGGCG GGCCTACTGA GAAGAATTGG GGCCCTGGCC	840
	CTGAGCGGGC GGAGCAGCTC CGCCTTGGTG TGGG	874

or a sequence complementary thereto.

10 14. A kit comprising, in a container or separate
containers, a pair of single-strand primers derived
from nonhomologous regions of opposite strands of a
DNA duplex fragment derived from an enterically
transmitted viral hepatitis agent whose genome
15 contains a region which is homologous to the 1.33 kb
DNA EcoRI insert present in plasmid pTZKF1(ET1.1)
carried in E. coli strain BB4 and having ATCC deposit
no. 67717.

20 15. The kit of claim 15, which are derived from
opposite strands of the EcoRI duplex insert in said
plasmid.

25 16. A method for detecting the presence of an
enterically transmitted nonA/nonB hepatitis viral
agent in a biological sample, comprising
 preparing a mixture of duplex DNA fragments
derived from the sample,
 denaturing the duplex fragments,
30 adding to the denatured DNA fragments, a pair of
single-strand primers derived from nonhomologous
regions of opposite strands of a DNA duplex fragment
derived from an enterically transmitted viral
hepatitis agent whose genome contains a region which
35 is homologous to the 1.33 kb DNA EcoRI insert present
in plasmid pTZKF1(ET1.1) carried in E. coli strain
BB4, and having ATCC deposit no. 67717,
 hybridizing said primers to homologous-sequence
region of opposite strands of such duplex DNA

fragments derived from enterically transmitted nonA/nonB hepatitis agent,

5 reacting the primed fragment strands with DNA polymerase in the presence of DNA nucleotides, to form new DNA duplexes containing the primer sequences, and repeating said denaturing, adding, hybridizing and reacting steps, until a desired degree of amplification of sequences is achieved.

10 17. The method of claim 16, wherein the primers are derived from opposite strands of the EcoRI duplex insert in said plasmid.

15 18. The method of claim 16, for detecting the presence of viral agent in a sample of cultured cells infected with the agent.

20 19. A vaccine for immunizing an individual against enterically transmitted nonA/nonB hepatitis viral agent comprising, in a pharmacologically acceptable adjuvant, a recombinant protein derived from an enterically transmitted nonA/nonB viral hepatitis agent whose genome contains a region which is homologous to the 1.33 kb DNA EcoRI insert present in plasmid pTZ-RF1(ET1.1) carried in E. coli strain BB4, and having ATCC deposit no. 67717.

30 20. The vaccine of claim 19, wherein the protein is derived from the EcoRI insert in said plasmid.

35 21. A vaccine for immunizing an individual against HEV comprising, in a pharmacologically acceptable adjuvant, a protein encoded by genetic sequence 406.3-2 or 406.4-2 or a fragment thereof.

22. In a method of isolating an enterically transmitted nonA/nonB viral agent or a nucleic acid fragment produced by the agent, an improvement which

comprises: utilizing, as a source of said agent, bile obtained from a human or cynomolgus monkey having an active infection of enterically transmitted non-A/non-B hepatitis.

5

23. The method of claim 22, wherein the bile is obtained from an infected cynomolgus monkey.

24. Human polyclonal anti-serum obtained from a
10 human immunized with a protein derived from an
enterically transmitted non-A/non-B viral hepatitis
agent whose genome contains a region which is
homologous to the 1.33 kb DNA EcoRI insert present in
plasmid pTZKF1(ET1.1) carried in E. coli strain BB4
15 and having ATCC deposit no. 67717.